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Q & A FACT SHEET ON MENINGOCOCCAL DISEASE

Meningococcal disease is one of the most feared infectious diseases in the United States. Although outbreaks are rare and even individual cases are uncommon, they frequently cause great concern when they occur. Reasons include the ability of this particular disease to affect previously healthy persons without warning and cause serious illness and sometimes death. But, actually, meningococcal infections are difficult to catch. The spread of the disease can be limited by diagnosing and treating cases of disease soon after the onset of symptoms and treating all those who have had close contact with an infected person. This Fact Sheet is intended to answer questions commonly asked by the public about meningococcal disease.

WHAT IS MENINGOCOCCAL DISEASE?

Meningococcal disease is caused by *Neisseria meningitidis* bacteria. The two most common types of meningococcal disease are: (1) meningitis, when the bacteria infect the fluid and the covering of a person's spinal cord and brain, and (2) infection of the bloodstream, called meningococcemia.

ARE THERE OTHER CAUSES OF MENINGITIS?

Meningitis is most often caused by viruses or bacteria. Knowing whether meningitis is caused by a virus or bacterium is important because the severity of illness and the treatment differ. Viral meningitis is generally less severe and resolves without specific treatment, while bacterial meningitis can be quite severe and may result in brain damage, hearing loss, or learning disability. For bacterial meningitis, it is also important to know which type of bacteria is causing the meningitis because antibiotics work better against some bacteria than others and can prevent some types from spreading and infecting other people. *Streptococcus pneumoniae* and *Neisseria meningitidis* are the leading causes of bacterial meningitis in the United States.

WHAT ARE THE SYMPTOMS OF MENINGOCOCCAL DISEASE?

Most people who have meningitis have stiff neck, headache, and high fever. These symptoms can develop over the course of several hours, or may take 1 to 2 days to develop. Other symptoms include nausea, vomiting, discomfort in looking at bright lights, confusion, and sleepiness. Newborns and infants may not have a stiff neck but appear slow or inactive, irritable, or simply stop acting normally. As the disease progresses, patients of any age may have seizures.

Patients with bloodstream infection often have a rash beginning as a smooth red area followed by small red blotches due to bleeding under the skin that don't blanch (turn paler) on pressure. Around 10%-15% of cases of meningococcal disease are fatal. Of patients who recover, 10% have permanent hearing loss or other serious after effects.

HOW IS MENINGOCOCCAL DISEASE DIAGNOSED?

Early diagnosis and treatment are very important. If you or a member of your family has symptoms suggesting meningitis or bloodstream infection described above, seek medical care immediately. Don't put it off. The diagnosis is usually made by growing bacteria from spinal fluid or blood. The spinal fluid is taken by performing a spinal tap, in which a needle is inserted into an area in the lower back where fluid in the spinal canal can easily be removed. Identification of the type of bacteria is important for selecting the best antibiotics for treatment.

ARE THERE DIFFERENT TYPES OF MENINGOCOCCAL BACTERIA?

Yes, there are. Two types (called serogroups) of meningococcal bacteria, serogroup B and serogroup C, cause most (80-90%) of the meningococcal infections in the U.S. and serogroup Y and W-135 make up most of the other cases. There are geographic differences in the types causing disease; in California, serogroup B, for which there is currently no vaccine available, is the most common. Serogroup A, which rarely causes disease in the United States, is the most common cause of epidemics in Africa and Asia. Within each serogroup there are many subtypes, called strains. Only one strain of one serogroup will be responsible for an outbreak. Special testing, done in public health laboratories, can identify the particular strain.

HOW COMMON IS MENINGOCOCCAL DISEASE?

Meningococcal disease is uncommon. In the U.S. each year, there are 1-2 cases for every 100,000 people, with 300 to 400 occurring in California. It is most common in children under five years old, but can also affect teenagers and older persons (over 60 years old). It is more common between late winter and early spring. Most of the cases occur one at a time. Rarely, outbreaks occur.

WHAT IS AN OUTBREAK OF MENINGOCOCCAL DISEASE?

An outbreak of meningococcal disease is defined as the occurrence of 3 or more cases from the same serogroup (or strain if such typing is available) in less than 3 months in people who have a common affiliation but no close contact with each other, resulting in a rate of disease greater than 10 cases per 100,000, or 10 times the usual rate. By convention, persons with disease who had close contact with another case or who had onset within 24 hours of each other should not be included in this case count, for purposes of determining whether or not there is an outbreak. Five to ten outbreaks of meningococcal disease are recognized in the U.S. each year, including 1 or 2 outbreaks or clusters in California. Outbreaks tend to occur in schools or other institutions but can also occur in communities, particularly among persons in close contact with each other.

IS IT EASY TO GET MENINGOCOCCAL DISEASE?

No, it is not. The bacteria are passed only by direct and very close contact with someone who is infected or is carrying the bacteria. Many people (as many as 2 in 10) carry the bacteria in the back of the nose and throat at any given time, especially in winter. While most of these people are healthy and do not themselves develop disease, they may pass the bacteria on to others. Why only a very small number of those who have the bacteria in their nose and throat develop disease, while others remain healthy, is not understood. Factors that affect an

individual's immune system's ability to fight off the infection are important. People at increased risk of developing meningococcal disease are those living in crowded living quarters (such as prisons and barracks), those who have had recent infections of the respiratory system (especially influenza), those with chronic illnesses, and those exposed to cigarette smoke. Drinking in bars has also been identified as a risk factor. Disease usually develops within two weeks after exposure.

The bacteria are transmitted from person-to-person in secretions from the nose and throat. They can live outside the body for only a few minutes, so that if the organisms are coughed onto a desk or toy, for example, they will soon die off and persons touching those objects later will not become infected. Also, the organisms cannot pass through normal skin but can enter the body through the mucous membranes of the nose or mouth or possibly the eyes. They are not spread by casual contact or by simply breathing the air near a person with disease or carrying the bacteria. They are not carried by animals or in the water or soil.

AM I OR MY CHILD AT INCREASED RISK FOR MENINGOCOCCAL DISEASE?

You are at increased risk if you are a close contact of somebody with meningococcal disease. Close contact means living with or having intimate contact with such an individual. People in the same household and persons attending or working in the same day-care setting as an individual with disease are considered close contacts. Intimate contact means direct exposure to the secretions from the nose and throat of an infected person; examples are kissing, sharing cigarettes, lipstick, lip balm, or drinks such as soda cans or water bottles, or mouth-to-mouth resuscitation. Being at increased risk means that your risk of developing meningococcal disease is significantly greater than that of other people in your community, and you should receive a recommended antibiotic to prevent the disease. If you have simply been in the same school, or shared transportation, or had social contact but did not have close contact with someone who recently had meningococcal disease, you are not at increased risk compared to others in your community.

You can also get the bacteria from close contact with a well person who is carrying the bacteria. In fact, most people who develop disease have not had contact with cases: cases rarely know a case that occurred earlier. Rather, his or her exposure was from someone who was a healthy carrier and there is no way to know who that person was.

WHAT CAN I DO TO KEEP FROM GETTING MENINGOCCOCAL DISEASE?

If you did any of the following with a patient who did develop meningococcal disease:

- lived in the same house;
- worked (adult) or played (child) in the same day-care setting with a child patient;
- were directly exposed to secretions from their mouth or nose, either directly (by kissing, etc.) or indirectly (by sharing a drink, etc.);

you should be treated with a recommended antibiotic. A number of different antibiotics are available for this purpose. They will eliminate the bacteria from the throats of most persons, therefore decreasing the risk of disease. They will usually prevent illness if given within 10 days after exposure to a case, but may not be effective if the bacteria have already started to invade your body from your throat. For this reason, you should be observed carefully for the development of illness even if given preventive antibiotic treatment. All of the antibiotics that can be used for prevention can have side effects. Besides the concern over side effects, it is

also important that only those at increased risk of meningococcal disease receive antibiotics, since the meningococcal bacteria can develop resistance to the antibiotics when they are overused, and then those antibiotics would no longer be effective when you really need them.

IS THERE ANYTHING ELSE WE CAN DO?

Yes. As a general recommendation, you and your children should wash hands frequently and avoid sharing drinks from the same container used by others (for example water bottles used in sports or shared soda cans) and avoid sharing of eating utensils or other materials that make mouth contact.

WHAT ABOUT VACCINATION?

Meningococcal vaccination is not recommended for routine immunization. The meningococcal vaccine currently licensed for use in the U.S., whose trade name is Menomune®, protects against four of the five major meningococcal serogroups: A, C, Y, and W-135. It is about 85-100% effective against those four but lasts a relatively short period of time, from 3-10 years. It does not protect against serogroup B disease that causes, on average, about 40-45% of meningococcal disease cases in California. Thus, overall this vaccine reduces one's risk of meningococcal disease by about half. The vaccine does not protect (or protects very poorly) infants and children under age 2 years, the age at which meningococcal disease is most common. The vaccine is given in a 1-dose schedule, and it takes about 7-10 days after receiving the vaccine for a person to develop protection. Thus, for persons just exposed to meningococcal disease, vaccine will not protect quickly enough; for immediate protection these persons need to take antibiotics. In children immunized at age 2-4 years, protection from the vaccine does not last long, dropping to a level of less than 10% protection after 3 years. For children immunized at age 5 years and older, protection lasts considerably longer but a booster dose is recommended every 3-5 years if one wants to continue protection. On the other hand, there is some evidence suggesting that booster doses of this vaccine do not protect as well as the first dose does.

Meningococcal vaccination is recommended only for certain persons at higher-than-average risk for meningococcal disease: persons with certain immune system problems, travelers to countries where meningococcal disease is common, and laboratory workers exposed to the meningococcal bacteria that may get suspended in the air. It should be considered for college freshmen who will live in on-campus housing. These persons should discuss the need for meningococcal vaccination with their physicians.

WHERE CAN I GET MORE INFORMATION?

Your doctor or health care provider should be your first source of information about your health and the steps you should take to protect yourself. We are making every effort to ensure that they have all the information available to do so.

Your local health department is available to answer additional question you might have.

Additional information is available at the Division of Communicable Disease Control of the California Department of Health Services (http://www.dhs.ca.gov/ps/dcdc/html/publicat.htm) or CDC (http://www.cdc.gov/ncidod/dbmd/diseaseinfo/meningococcal_g.htm) web sites.